DOCUMENT RESUME

ED 256 185 FL 015 048

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TITLE Strategies for Foreign Language Instruction on the Microcomputer.
PUB DATE 18 Nov 84
NOTE 6p.; Paper presented at the Annual Meeting of the American Council on the Teaching of Foreign Languages (Chicago, IL, November 16-18, 1984).
PUB TYPE Guides - Classroom Use - Guides (For Teachers) (052) -- Speeches/Conference Papers (150)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS *Classroom Techniques; Computer Assisted Instruction; *Courseware; Elementary Secondary Education; *Evaluation Criteria; Higher Education; *Media Selection; Microcomputers; *Second Language Instruction; Teaching Methods

ABSTRACT

One way for foreign language teachers to evaluate computer software, or courseware, for computer-assisted instruction is to look at it from the point of view of the roles of the courseware author as production manager, curriculum developer, learning specialist, instructional designer, and evaluator. In assessing courseware, teachers should decide whether: (1) a specific audience is addresed; (2) lesson segments are integrated and sequenced logically; (3) presentation methods suit the content; (4) adequate documentation and suggestions for use are available; (5) lesson content is correct; (6) the language is colloquial and the material culturally authentic; (7) material is interactive, with meaningful and helpful computer responses; (8) computer responses are nonjudgmental and encouraging; (9) there is room for individual differences in student responses; (10) sound teaching practices are followed; (11) help is available for the student if needed; (12) hardware and authoring language are suitable for the task; and (13) the lesson has specific goals. After observing the intended audience using the program, teachers should decide whether the lesson captures student interest, whether students feel successful and rewarded, and whether students succeed as measured by independent testing. (MSE)

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Strategies for Foreign Language Instruction on the Microcomputer

December 15, 1984

In order that foreign language teachers in the schools and instructors at the university level respond satisfactorily to demands for Computer-Assisted Instruction (CAI) both from the public and from administrators, they need to inform themselves about all facets of the new medium. As educators they may be asked to fill various roles in the CAI field: to be judges of commercial software, to provide ideas for courseware, even to become author/programmers of software themselves. In addition they are expected to integrate CAI from any source into the curricula of the school or university. At present CAI most often provides drill and practice, tutorial instruction and instruction by simulation. Through this software, students will be helped to improve their foreign language skills, develop cognitive concepts, deepen their cultural understanding and be inspired to use the foreign language creatively.

As a result of the expectations for educators concerning CAI, strategies are needed for judging or preparing programs which meet the instructional goals of educators and those of their students. One way to set up criteria and strategies for evaluating or producing CAI is to investigate the various roles which the author of CAI takes on. These roles were originally outlined by Esther Steinberg in her recent book, "Teaching Computers to Teach" published by Lawrence Erlbaum Associates (Hillsdale, N.J., 1984). The roles are: production manager, curriculum developer, learning specialist, instructional designer and evaluator. Let us examine these roles from the perspective of the foreign language teacher.

The first task for the author of CAI a production manager is to choose a suitable authoring language, keeping in mind the constraints of available hardware. From a group of languages and author aids including LOGO, PASCAL, TUTOR, TENCORE, BASIC with EnBASIC and PILOT, the last two were chosen for the present discussion because they combine simplicity of language which makes them relatively easy to learn, ease in editing which speeds production time, and sufficient flexibility to be used for all modes of CAI mentioned previously; drill, tutorial and simulation. A final but important consideration is that they are available at relatively low cost. Although they fulfill a specific need, we have not included in this paper prepackaged programs into which teacher-programmers can plug in their questions and answer sequences because many teachers wish to invent their own approaches to CAI.

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The graphic capabilities of SuperPILOT on the Apple II, IIe or IIc show the range of possibilities: shapes, colors, lines, flexible graphic correction modes and ease of connection between graphics and lessons. The SuperPILOT character set package allows foreign character sets including non-Roman to be created and readily used in lessons by both the author and student-user. The same is true of PILOT on the IBM personal computer. On the other hand, also on the Apple microcomputer the power and flexibility of EnBASIC sentence

judging can be used with any BASIC lesson demanding elaborate judging routines. EnBASIC also provides a character generator with advanced options for sizing and facility in switching character sets for both author and student.

The problems commonly faced by the curriculum developer are intensified in CAI development. The hard-won victory over production problems leads novice programmers to feel that whatever can be made to appear on the screen should be sufficient for learning. This is understandable since it is often difficult to bring the desired routine, graphic or simulation into being. Well-worked-out maxims of teaching and learning are often discarded as a result of the mechanical complications. The developer needs to be reminded of general teaching principles, e.g., proceed from the simple to the complex, build on what the student already knows, consider the age, ability, sophistication, and goals of the student user, and keep in mind course and curricular goals. These ideas can be illustrated by types of language exercises which have been successfully used on the microcomputer including paradigms, multiple choice exercises, fill-in (single to multiple), sentence builders, scrambled words and sentences, partial and then complete sentence translations between the foreign language and the student's native tongue.

As curriculum developers, the author-programmers need to be encouraged to go beyond content accuracy to use colloquial language correctly and aptly, keeping the material authentic to the culture. They need to teach for proficiency as well as for achievement goals. Culture-based microcomputer lessons can contribute to teaching for proficiency by incorporating visual material showing cultural material with a large "C", inviting the student to react in the language being taught. Topics in geography, history, economics, architecture and the arts immediately suggest themselves. For example, in materials we have developed a map of Paris is the background for an exercise on verb usage. The student picks the correct verb from a list and the computer fits it into a sentence which describes a well-known spot in Paris. If the verb form is correct, the place in question flashes on the map allowing the student to learn something of the geography of the French capital. Culture with a small "c" can be illustrated on the microcomputer, involving the students in authentic scenes of daily life in the foreign country, e.g., the restaurant, the bus queue or the telephone call. In our work we show a variety of scenes in a restaurant. The student chooses which storyline to follow and can ask for translations of the conversations which take place there.

Through the microcomputer, the world can be brought to the student of languages or social studies in a direct visual way. While learning a foreign language, the student can gain much background knowledge about the location of countries, their exports, imports or historical high points as a few examples. Or, if the microcomputer program is a social studies lesson, incidental knowledge of foreign customs, attitudes, prejudices or opinions about the world can be incorporated into the lesson from the target cultures' viewpoint.

Concepts in foreign language can be developed forcefully using the unique responsiveness of the microcomputer. For example, contrasts between the use of imperfective and perfective aspects in Russian can take the students step by step through a series of choices which can do much to make this vital difference clear with an immediacy hard to achieve in the classroom. Guidance

and explanations can be offered at every step in the process. Tense sequence in the romance languages and German is another area in which the microcomputer can be programmed to offer needed guidance at the moment when the student is using a tense correctly or incorrectly to express a particular time concept.

The role of the CAI author as a learning specialist is vital to the development of successful programs. Commercially prepared programs must also be judged with attention to criteria developed by instructors for successful individualized teaching programs in general. The learning specialist should ask questions of the following kind. Is sufficient attention given to motivating the student-users? What motivating devices are used? Is the program personalized, that is, are the students able to move at their own rates and by their own routes? Do the students have a choice between sound and no sound? Can they choose to repeat and review at will? Do they have options to leave the exercise or the lesson? Is there plenty of active practice? Are the students kept informed of their progress?

Here it is important to consider an important motivating factor for students: anxiety reduction. Has privacy been assured for the student during the learning phases of the program or are all scores tracked and reported? Are the responses to student input frank but non-judgemental? Does each exercise have a well thought out introduction and well defined end? Does the student know the number of problems and/or the planned route through the material? Is there help available and an indication of the method for obtaining it? Are there optional explanations? (e.g., translations upon request, expanded help sequences)

The reward of learning something new is probably the greatest motivating factor. The learning specialist must arrange not only that the students learn as much as possible but that they realize how much they have learned. Achievement should be accompanied by a feeling of success. This can be given by a continuous, positive low-key series of rewards, comments like push-on, good, OK, or musical refrains or pictures.

The author-programmer's next role is that of instructional designer. Here the foreign language teacher is presented with a series of decisions to make. How should the problems be presented to the student? How should the segments of the lesson be integrated? What routing and sequencing should be employed? Should the lesson be practice, tutorial, consist of simulations or some or all of the above? If these areas are combined, what is the appropriate combination? Is accompanying documentation to be written? Is there to be a teacher's manual and student material? Methods of use should be suggested. Is the lesson for use in the classroom, in the laboratory, at home, in groups, or individually? How might the material be integrated into the curriculum and into the school day?

A consideration of the role of the author-programmer as evaluator opens a series of vital questions. What do I wish to teach? To whom am I teaching this material? What do I want the students to know or do as a result of my program? Similar questions must be asked in judging commercial CAI.

Author-programmers must continuously evaluate their own lessons as they are developed. Immediate self-testing should be accompanied by tests with a small number of real subjects, interested observers, students and colleagues.

When a segment is completed, it should be tested with the author-programmer present to glean from comments what is working and what is not in the lesson segment. The first drafts should be lean, that is, they should not include extensive teaching or help sequences until students comments indicate that they are needed. When larger segments are finished, more formal trial runs should begin with comments collected by the author. Since writing CAI takes a great deal of time, it is imperative to plan carefully and to test as the lesson develops in order to prevent loss of time.

In presenting the problems of creating and judging CAI through a series of roles which the author plays, the following criteria for evaluating CAI have emerged. They can be summarized in a short list:

1. Is a specific audience (student/user) addressed?

2. Are the lesson segments integrated and sequenced logically?

3. Do the methods of presentation suit the lesson content to be taught?

4. Is there adequate documentation and are there suggestions for use?

5. Is the lesson content correct?

6. Is the language colloquial? Is the material authentic culturally?

7. Is the material interactive, requiring thoughtful responses from the students? Are the responses from the computer program meaningful and helpful? Is the computer programmed to react responsively and appropriately to the student input?

8. Are the computer responses to the students non-judgmental and encouraging?

9. Is there room for individual differences in student responses?

10. Are sound teaching practices followed? For example, does the lesson move from easy to more difficult material? Does it build upon what the student already knows? Are there clear directions and uncrowded pages?

11. Is help available for the student should it be needed?

12. Is the hardware used and is the authoring language suitable to the task?

13. Does the lesson have specific goals (skills, knowledge) for the students?

14. Have you observed a student from the intended audience using the lesson?

15. Does the lesson capture the student's interest? Does the student become interested and involved? Are the exercises varied and inventive?

16. Do the students feel successful and rewarded?

17. Do the students succeed as measured by independent testing?

These criteria are intended as reminders to the instructors of factors to look for in judging CAI. Some may be more important or less depending on the type of software being evaluated. Brief segments of material might have limited goals, for example, a short exercise giving examples of the use of new vocabulary in special situations abroad such as driving in a car. In this case limited documentation might be required. Since relatively little software is available now, foreign language instructors will have to work with what has been produced and evaluate it as the students use it. Published software reviews are helpful, but even these may use criteria which do not apply to the particular instructional needs of an individual instructor or the goals of his or her students. As CAI is integrated more fully into the curriculum and as teachers become more innovative in its use, they will acquire the necessary depth of understanding of its potential and its limits. We offer this set of preliminary guidelines as an aid to the instructor who must deal with the new teaching tool, CAI.